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Essay

on the

Pathology of Haemorrhage

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Haemorrhage.

The subject I have selected for my inaugural dissertation is a difficult one; and one too I feel my incompetency to treat in a satisfactory manner: for a Physician of high reputation acknowledges a theory of Haemorrhage to be a desideratum in the Science of Pathology which he is unable to supply — Nevertheless, I presume it is allowable for me to give my impression in regard to this subject of acknowledged difficulty.

This much I think I can venture to say, that haemorrhage (having no reference to that which is the immediate product of external violence) consists in a flow of blood from a rupture of

the arteries of the part whence it issues, occasioned by an increased action of these arteries, instituting an increased force in the blood which they carry—)

In no other way can I conceive how haemorrhage can be established, being one of those who do not believe that so attenuated a state of the blood can exist, as that it can escape from its vessels, how relaxed soever they may be without a previous rupture in them. I cannot see indeed how this can take place, otherwise than by an unnatural struggle in them to impel forward their contents. Haemorrhage then according to the opinion expressed, must always be preceded by some preternatural excitement at least in the part from which the blood flows. This excitement it appears to me may be considered the commencement of inflammation and would actually pass fully into that state exhibiting all its phenomina, but for the occurrence of haemorrhage by which it is obviated; for I hold inflam-

mation in its beginning to consist of excessive action, both as to the arteries of the part affected and their contents. This excessive action is owing to a morbid increase of excitability, which determines the arteries to contract with unusual force upon the application of their accustomed stimulus the blood, and by this means the flow of the blood through them becomes expedited, which elicits a larger portion than ordinary of that fluid a tergo, more towards these vessels, as being able through them to find a more ready passage. Their action thus becomes still further increased upon the augmentation of the quantity of their stimulus, until their fibres are so put upon the stretch by enlargement of calibre, from rapid increase of the accumulation of blood within them, that they begin to suffer loss of energy, and to lose their action. This last state of the arteries I would call the second stage of inflammation. If then what I have said concerning

inflammation be correct, excitement in excess which I have already stated to usher in haemorrhage, and incipient inflammation, are one and the same thing: it being difficult to draw a line of distinction between them.

The difference, and only difference, I think, between the two is, that the excitement which leads to the rupture of the arteries in haemorrhage, is more violent than that which constitutes the first stage of what afterwards runs into complete inflammation. In both cases, the vessels struggle hard to relieve themselves of their increasing contents, but in the case of haemorrhage, the struggle is so severe as to terminate in the rupture of the arteries and a stop is thus put to a further progress of the inflammation: if the action be not so great as to produce lesion of the arteries, the inflammation may advance to its

ultimate stage.

The symptoms that precede haemorrhage, mentioned by Dr. Cullen himself, who is acknowledged to be a very correct detailer of symptoms, are pain and tension of the part from which the blood is to be found accompanied with heat, and a throbbing sensation, some swelling, and redness of the part,

Now are not all these precisely the symptoms of inflammation? and if haemorrhage supervene upon them, which I presume will not be disputed, does it not go strongly to show what I have said or already expressed a belief in, and that is, that the state of the arteries which immediately precedes haemorrhage, and that which make the first stage of inflammation, are the same differing only in degree - If this be the fact, inflammation and haemorrhage are referable to the same

predisposing cause — The reason why inflammation is not always consummated in the parts from which the blood flows in haemorrhage, as well as in others is because of the tenderness of the tissue in which the arteries are enveloped not affording a strong lateral support, as the vessels of the parts received from which circumstance they are not so well able without laceration, to withstand the first shock of inflammatory excitement — This is a reason too why inflammatory fevers of high action, the parts from which haemorrhage usually procedes are more liable to suffer this or inflammation, than others. The arteries of these parts being but feebly supported the force of the excitement is apt to be to them directed and these principally to expand itself producing effects proportionate to its degree: if this be very considerable, the ill

guarded vessels are ruptured in their first efforts to open, the violence offered them and consequently pour forth blood: if it be less intense, the integrity of the vessels may be preserved and inflammation advanced —

In febrile diseases or indeed in a hurried circulation, from whatsoever cause, if the parts liable to pour out blood, labour under predisposing debility, then will haemorrhage or inflammation be the more likely to occur. The former will supervene upon the same excitement as would provoke the latter provided the parts do not possess their full tone and vigor. If there be predisposing debility, then in all cases of much general excitement, the incipient inflammation will be the more liable to be arrested by a breach of vessels and consequent effusion of blood —

The exciting causes of that inflam-

mation which is not the effect of general excitement, are it is said, mechanical violence, cold, and chymical irritants. Inflammation commencing from these causes is I suppose, also liable to give way to haemorrhage, but scarcely I think unless the part be previously debilitated, or unless general excitement follow as a consequence of the local injury. In the latter case haemorrhage might ensue in the way already described. In the former, action sufficiently violent might be established in consequence of that immediate augmentation of stimulus, which according to a law of the animal economy would take place from irritation of the exciting causes, to effect a rupture and discharge of blood.

I shall now proceed to give a short account of the cure of haemorrhage, being inconsistent with the limits to which I wish to confine myself —

It will appear from what I have said that haemorrhage is always tonic at least at its commencement; but it may become atonic after it has existed for a time. So long as it continues tonic, the discharge of blood cannot so readily be stoped — When it becomes atonic it will be diminished in the same proportion as the action of the bleeding vessels is lessened and this opportunity will be afforded of blocking up the mouths of the vessels by means tending to produce the formation of coagula —

Some writers do aver that we are not justifiable in interfering at all, but must leave haemorrhagies to the direction of nature in all cases — They contend that haemorrhage is produced for the purpose of relieving some oppression, and will cease voluntarily when the purpose is answered — In a few instances

I do not know but what this doctrine may be true; as we are aware of it sometimes being very painful and even injurious to put a stop to the bleeding in Haemorrhoids and still worse, when there exists danger of Apoplexy, Palsy et cetera —

But the efforts of nature are not always salutary, and for this reason we should take the management of the case entirely out of her hands, as she often throws out blood in improper places, as in the Brain, and Lungs, and in alarming quantities; but in those cases in which we are to interfere, I naturally form two indications —

The first is to diminish arterial excitement, if this exists in any considerable degree when we are called upon — And the second indication, is to labour for the formation of coagula at the mouths of the

bleeding vessels when this can be done -

The fulfillment of the first indication is plain. This is done by direct evacuations from the system - If the patient be plethoric, or the action of the arteries considerable, Venesection should be employed, also purging, more especially with the Nutral Salts, as these have a tendency to curb action, both by their depletory and refrigerating effects - Sedatives are sometimes of vast importance in very active haemorrhage, as Digitalis Squill Tobacco &c. They would perhaps as promptly and effectually moderate action as almost any thing else - Emetics are highly recommend in the cure of haemorrhage by our worthy and distinguished Professor of Theory & Practice of Medicine - He considers their action, on the principle of revulsion; by removing the congestion from organs deeply

concerned in Vitality, and restablishing equitable circulation —

Blistering has also the same tendency with the remedies already mentioned, and in addition to this, particularly if the haemorrhage originated in local excitement, it may serve to subvert that morbid excitability in which it had its ultimate origin —

Confined particularly to a low ~~diet~~ vegetable diet, he considers to be of great importance — conjoined with this moderate exercise he considers, a very good auxillary in the cure of haemorrhage, as the Excretions and Secretions which detract blood from the circulatory mass, are more effectually carried on — In trying to produce coagula at the mouths of the bleeding vessels, regard should be had to position, when circumstances point it out: Refrigerants and cooling liquids

should be taken internally, together with some of the astringents, such as cold, and astringents applications which should be applied externally when practicable. The most conspicuous of this class of remedies is Allum The Mineral Acids, Copper Zinc, preperations of Lead &c. Benefit would be likely to accrue likewise from prepare made against the mouths of the bleeding vessels when the situation will admit —